

Remarks

In the Office Action mailed on 5 February 2007 the Examiner objected to the drawings due to certain alleged errors, objected to the specification due to certain informalities, and objected to claims 1-10 and 15-20 due to certain informalities.

The Examiner rejected all claims (1-20) as unpatentable under 35 U.S.C. §101 as directed to non-statutory subject matter.

The Examiner rejected claims 1 and 2 under 35 U.S.C. §102(e) as anticipated by Beckett (U.S. Patent Publication No. 2005/0015532), rejected claims 10-13 under 35 U.S.C. §102(e) as anticipated by Elliot (U.S. Patent Publication No. 2005/0066100), and rejected claims 14 and 17-19 under 35 U.S.C. §102(e) as anticipated by Grabauskas (U.S. Patent Publication No. 2003/0076788).

The Examiner also rejected claims 3 and 8 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Elliot, rejected claims 4 and 5 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Doelz (U.S. Patent No. 4,156,798), rejected claim 6 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Smith (U.S. Patent No. 5,335,227), rejected claim 7 under 35 U.S.C. §103(a) as unpatentable over Beckett, rejected claim 9 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Bearden (U.S. Patent Publication No. 2003/0097438), rejected claims 15 and 20 under 35 U.S.C. §103(a) as unpatentable over Grabauskas in view of Elliot, Rejected claim 16 under 35 U.S.C. §103(a) as unpatentable over Grabauskas.

Applicants respectfully traverse the Examiner's rejections under §§ 101, 102, and 103. Applicants respectfully disagree with the Examiner's objection to the drawings. Applicants have amended the specification and claims in response to various of the Examiner's objections thereto. Applicants have amended various claims for editorial clarity and to better protect the invention.

Objection to the Drawings

The Examiner objected to the drawings suggesting that reference number 103 in figure 1 "has been used to designate both all of the target devices in drawing figure 1." The Examiner urges that each target device should be designated with a specific reference number "in order to clearly embody a connection from each expander to each

particular target device." Applicants respectfully submit that reference number 103 is never used in the specification to refer to any particular target device but rather is used only in reference to any or all of the target devices in the exemplary SAS domain 100. By contrast figures 4, 5, and 6 clearly designate individual target devices T1, T2, T3, and T4 and thus clearly embody exemplary connections between particular expanders and particular devices. Applicants respectfully request reconsideration and withdrawal of the Examiner's objection to the drawings.

Objection to the Specification

The Examiner objected to the specification due to certain informalities. In particular, the Examiner noted that the specification contains an embedded hyperlink (on page 2) and requested deletion of same. Although incorporation by reference through a hyperlink is invalid, mere reference to a hyperlink as in the subject application as background information evidencing that which is readily known to those of ordinary skill in the art is permitted. The MPEP states that the Patent Office will render such links "inactive" for purposes of online publication. MPEP §608.1 states that:

Where the hyperlinks and/or other forms of browser-executable codes themselves rather than the contents of the site to which the hyperlinks are directed are part of applicant's invention and it is necessary to have them included in the patent application in order to comply with the requirements of 35 U.S.C. 112, first paragraph, and applicant does not intend to have these hyperlinks be active links, examiners should not object to these hyperlinks. The Office will disable these hyperlinks when preparing the text to be loaded onto the USPTO web database.

The noted hyperlinks of the specification are not improper attempts to incorporate by reference but rather merely point a reader to helpful background information evidencing that which is generally known in the art. Thus the hyperlinks to background information helps enable the invention as required under 35 U.S.C. §112. In hopes of advancing prosecution of this application, Applicants have amended the specification to remove the "http://" prefix of the noted hyperlink to thus aid in rendering the embedded hyperlink reference inactive for purposes of browsing online. Applicants further hereby request that the Patent Office render all such hyperlinks inactive in any online publications thereof.

The Examiner also noted a typographic error on page 8 where an extraneous "the" appears on line 11 of the second paragraph and a mis-spelling of the word "skilled" as "killed" on page 10. Applicants have amended to correct these errors in the specification on pages 8 and 10.

In view of the above discussion and the amendments to the specification, Applicants respectfully request reconsideration and withdrawal of the objections to the specification.

Objection to the Claims

The Examiner objected to claims 1-10 and 15-20 due to certain listed informalities. Applicants thank the Examiner for a careful reading of the claims. However, Applicants respectfully submit that many of the suggestions are unnecessary additions of antecedent adjectives and suggest that the claims are sufficiently clear as filed. However, in hopes of advancing prosecution of this application, Applicants have accepted many of the Examiner's suggestions with an understanding that the meaning and scope of the claims is unchanged. With the exceptions noted below, Applicants have amended the claims substantially as suggested by the Examiner:

- The Examiner suggested changing "all paths" in line 2 of claim 4 to recite "said paths". Applicants respectfully disagree and note that there is no antecedent basis for reciting "said paths" in claim 4 since there is no earlier reference to any paths. Claim 4 is unchanged in this regard.
- The Examiner suggests "SMP Discover request" on line 5 of claim 6 should read "said SMP Discover request". With due respect there is no such phrase on line 5 of claim 6. Rather, line 5 of claim 6 properly recites "SMP Discover **response**" (emphasis added). Claim 6 is unchanged in this regard.
- The Examiner suggests "a first device" on line 3 of claim 7 should read "the first device". Applicants respectfully disagree and note that there is no antecedent basis for reciting "the first device" in claim 7 since there is no earlier reference to any first device. Claim 7 is unchanged in this regard.
- The Examiner suggests "a neighboring device" on line 4 of claim 7 should read "the neighboring device". Applicants respectfully disagree and note that there is

no antecedent basis for reciting "the neighboring device" in claim 7 since there is no earlier reference to any neighboring device. Claim 7 is unchanged in this regard.

- The Examiner suggests "a first device" on line 2 of claim 8 should read "said first device". Applicants respectfully disagree and note that there is no antecedent basis for reciting "said first device" in claim 8 since there is no earlier reference to any first device. Claim 8 is unchanged in this regard.
- The Examiner suggests "a second device" on line 2 of claim 8 should read "said second device". Applicants respectfully disagree and note that there is no antecedent basis for reciting "said second device" in claim 8 since there is no earlier reference to any second device. Claim 8 is unchanged in this regard.
- The Examiner suggests that "routing attributes" on line 2 of claim 16 should read "the routing attributes". With due respect, Applicants find no such phrase anywhere in claim 16. Claim 16 remains unchanged in this regard.
- The Examiner suggests the first use of "and" on line 3 of claim 18 should be replaced with a comma. Applicants respectfully disagree but have amended the claim otherwise to clarify the claim recitations.
- The Examiner suggests "response messages" on line 3 of claim 19 should read "the response messages". Applicants respectfully disagree as there would be no antecedent basis for use of "the" and further because the phrase correctly reads "exchanging SMP Discover requests and response messages" - insertion of "the" as suggested would not be proper. Claim 19 remains unchanged in this regard.
- The Examiner suggests "a first device" on line 4 of claim 20 should read "the first device". Applicants respectfully disagree and note that there is no antecedent basis for reciting "the first device" in claim 20 since there is no earlier reference to any first device. Claim 20 is unchanged in this regard.

In view of the above discussion and the various amendments, Applicants respectfully request reconsideration and withdrawal of the objections to claims 1-10 and 15-20.

35 U.S.C. §101 Rejection

The Examiner rejected all claims (1-20) under §101 as directed to non-statutory subject matter. Specifically, the Examiner suggests that independent claims 1, 10, and 14 fail to recite statutory subject matter and that the corresponding dependent claims fail to resolve this deficiency. Applicants have amended independent claims 1, 10, and 14 to recite (in appropriate variant forms) that the information derived/discovered is used to generate routing tables used by the devices of the domain. All SAS expanders and initiators may use routing tables to determine how to forward information to an intended destination device of the domain. Information used to generate such routing tables includes routing attributes of each port of each device of the domain. Prior techniques required the routing attributes to be manually determined and configured - a potentially onerous task in large domains. By contrast to prior techniques and structures, the claimed invention automates the process of generating such routing attributes and hence routing table information used by the initiator and expander devices of the domain. In view of the amendments to claims 1, 10, and 14, Applicants maintain that all claims (1-20) are directed to statutory subject matter under §101 and respectfully request reconsideration and withdrawal of the rejection.

35 U.S.C. §§ 102 and 103 Rejections

The Examiner rejected independent claim 1 under §102(e) as anticipated by Beckett and rejected claims 2-9 (dependent from claim 1) as either anticipated by Beckett or under §103(a) as unpatentable over Becket alone or in various combinations with other art. The Examiner suggests that paragraphs 0036 and 0039 teach discovery of devices and ports of devices of a SAS domain. Applicants readily concede, as discussed in the Background section of the subject application, that a SAS standard "Discovery" process is well known to discover devices and ports of devices in the domain. The Examiner then suggests that the step recited to automatically configure routing attributes of ports of devices is also taught in Beckett's paragraph 0036. Applicants respectfully submit such is clearly not the case and thus Applicants traverse this rejection of claim 1 and the related rejections of dependent claims 2-9. There is no automated procedure in the SAS specifications for automatically determining and configuring the routing attribute of each

port. Rather, as discussed in the Background section of the subject application such a determination and configuration is a manual procedure in accordance with the SAS specifications. In a large SAS domain with hundreds of devices and hundreds or thousands of ports, such a manual process is onerous. Thus the present invention provides an automated process to determine and configure routing attributes of ports of devices of the domain. Beckett teaches nothing more than standard SAS/SATA protocols in the cited passages and thus fails to teach or reasonably suggest any structure or techniques for automatically performing such configuration of the routing attributes of the ports of the devices of the SAS domain. In fact, "routing attributes" are never even mentioned in the teachings of Beckett. Beckett merely proposes an interface circuit capable of communicating in any of several protocols and for selecting among those protocols. Becket proposes no enhancements to the SAS specifications to permit the circuit, when using a SAS protocol, to automatically determine and configure routing attributes of the various ports of the devices of the domain.

Thus, Applicants maintain that independent claim 1 is allowable over Beckett and over all art of record considered individually or in any combination. Dependent claims 2-9 all depend from claim 1 and recite further limitations of the inventive method. For at least the same reasons as discussed above for claim 1, claims 2-9 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-9.

The Examiner rejected independent claim 10 and dependent claims 11-13 under §102(e) as anticipated by Elliot. As regards independent claim 10, the Examiner cites Elliot at paragraph 0013 as teaching that each port of the expanders has an associated routing attribute and cites paragraphs 0016 and 0017 as teaching a control element operable to configure the routing attributes of the port by traversing port connections of the domain. Applicants could not disagree more. It is axiomatic that ports of an expander have a routing attribute - that is specified by the SAS specifications. Elliot clearly fails to teach that the routing attribute of each port is configured by a control element of the system - let alone a control element that traverses the connections of the ports of the domain. Elliot merely mentions that there are three types of routing attributes and that the routing through ports is in association with the particular attribute assigned to each port.

Elliot says nothing of how the routing attributes are configured - Elliot simply does not address the issue. Rather, Elliot impliedly assumes the attributes are pre-configured by some unspecified mechanism such as the manual procedures discussed in the Background section of the subject application. Nothing in Elliot teaches or remotely suggests any automated procedure by a control element of the system to determine the routing attributes of the ports of the expanders of the domain. None of the art of record, considered individually or in any combination, teaches or reasonably suggests such an automated process by a control element of the domain. Thus, Applicants maintain that independent claim 10 is allowable over all art of record. Dependent claims 11-12 all depend from claim 10 and recite further limitations of the inventive system (claim 13 has been cancelled with its essential recitation merged into base claim 10). For at least the same reasons as discussed above for claim 10, claims 11-12 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 10-12.

The Examiner rejected independent claim 14 under §102(e) as anticipated by Grabauskas and rejected dependent claims 15-20 either as anticipated by Grabauskas or under §103(a) as unpatentable over Grabauskas in various combinations with other art. As regards independent claim 14, the Examiner cites Grabauskas as teaching all elements of claim 14 pointing to the Abstract of Grabauskas as teaching a means for discovering a topology of a SAS network and pointing to paragraph 0022 as teaching the claimed means for configuring SAS routing attributes responsive to discovery of the SAS topology. As above with respect to claims 1 and 10 and the other art applied thereto, Applicants strongly disagree. First and foremost, Grabauskas does not teach SAS networking at all - let alone means for discovery of a SAS topology or means for configuring routing attributes of the ports of the expanders of the SAS domain. As discussed above, the SAS standards simply presume a manual process for configuring the routing attribute of each port of an expander (or an initiator). Nothing in Grabauskas teaches anything other than such known procedures especially since Grabauskas teaches nothing of the SAS protocols at all. More specifically, Grabauskas neither teaches nor reasonably suggests any means for automatically configuring the routing attributes of the ports of devices in the domain - i.e., as an element of the SAS domain. Thus, Applicants

maintain that independent claim 14 is allowable over Grabauskas and over all art of record, considered individually or in any combination. Dependent claims 16-20 (claim 15 has been cancelled with its essential recitations incorporated into base claim 14) all depend from claim 14 and recite further limitations of the inventive system. For at least the same reasons as discussed above for claim 14, claims 16-20 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 14 and 16-20.

In view of the above discussion, Applicant respectfully requests reconsideration and withdrawal of the rejections under §§ 102 and 103 of remaining claims 1-12, 14, and 16-20.

Conclusion

Applicants have discussed and traversed the Examiner's objection to figure 1 of the drawings and have requested withdrawal thereof. Applicants have traversed and discussed the Examiner's objection to an embedded hyperlink and have amended the specification in response to the Examiner's various objections to the specification. Applicants have traversed and discussed certain of the Examiner's objections to the claims and have amended the claims in response to others of the Examiner's objections to the claims. Applicants have discussed the Examiner's rejection of all claims under §101 and have amended claims 1, 10, and 14 in response thereto. Applicants have traversed and thoroughly discussed the Examiner's rejections of all claims under §§ 102 and 103. Applicants have amended all remaining claims for editorial clarity and to better protect the invention. Claims 13 and 15 have been cancelled and their essential recitations integrated into their respective base claims. Applicants have requested reconsideration and withdrawal of all outstanding objections and rejections.

Applicants believe that no other fees are due in this matter. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

Respectfully submitted,

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